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The Associations Between Values, Committed Action, And Cardiovascular Reactivity

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THE ASSOCIATIONS BETWEEN VALUES, COMMITTED ACTION, AND CARDIOVASCULAR REACTIVITY

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ABSTRACT

High stress levels can have profound physical and emotional effects. Several coping mechanisms have been shown to decrease levels of stress. Values, a form of coping, have been implicated in reducing psychological and physiological indicators of stress. The behavioral component, committed action has also demonstrated treatment efficacy in ACT treatments of depression, anxiety, and chronic pain. However, few studies have examined the effects of values and committed action on acute responses (e.g., cardiovascular reactivity) to stress. The purpose of the present study was to examine the association between values, committed action, and physiological responses to stress.

Participants were 107 students from a public university in the southeastern region of the United States. The sample consisted of 33 males and 74 females ranging in age from 18 to 53 years. It was hypothesized that in the prediction of overall stress, committed action would account for variance beyond that of values. Similarly, in the prediction of both overall depression and anxiety levels, committed action would account for variance beyond that accounted for by values. Lastly, it was also expected that in the prediction of short-term changes in blood pressure and heart rate following a stress manipulation, committed action would account for variance beyond that accounted for by values. A series of hierarchical multiple regressions were conducted. As expected, committed action accounted for variance beyond values in the prediction of overall stress, depression levels, blood pressure (systolic), and heart rate. Contrary to expectations, in the prediction of anxiety levels, committed action did not account for variance beyond values. Results and implications of findings are discussed.

DEDICATION

This dissertation is dedicated to my mother, Maggie Robinson-Crudup, my late father, Bobby F. Crudup, and my brothers Bobby Jr., Brandon, and Breland. Everything that I do is for you all. You continue to motivate me and push me towards greatness. Thank you for your unwavering support while in graduate school and throughout this journey called life.

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INTRODUCTION

Stress is an inevitable part of life. While moderate levels can facilitate growth, excess amounts of stress can lead to chronic physical and emotional effects (Archer & Carroll, 2003). Rawson and colleagues (2001) reported that high stress levels are associated with depression, anxiety, and suppressed immune system activity. Similarly, Tartaro and colleagues (2005) found that depression, anxiety, hypertension, diabetes and cardiovascular disease are linked with high levels of stress.

A broad array of events has been identified as potential stressors. These events include catastrophes, major life events, acculturative stress, and everyday hassles. Whether an event is experienced as a stressor is dependent on individuals' perceptions of their ability to effectively cope with the event (Stawski et al., 2008). Individuals who believe they have limited resources for addressing challenging situations or events are believed to experience these situations as significant stressors.

There are several ways in which people may cope with stress. Coping mechanisms can be organized into two categories, problem-focused coping and emotion-focused coping (Carver et al., 1989). Problem-focused coping involves actions designed to alter the source of stress such as planning, suppression of competing activities, and seeking instrumental social support. Emotion-focused coping is aimed at reducing or managing emotional distress associated with stressful situations. This type of coping includes seeking emotional social support, positive reinterpretation, acceptance, denial, and religious practices.

Studies also indicate that values may have positive effects on psychological functioning and physiological responses to stress. Knoop (1994) reported that intrinsic work values such as achievement, recognition, responsibility, and value of work were negatively correlated with stress. Creswell and colleagues (2005) found that compared to controls, participants who affirmed their personal values, meaning they indicated why the highest ranked value was important to them, had significantly lower cortisol responses to stress.

Several studies also indicate that discrepancy between personal values and values-based action (committed action) can have negative psychological and physiological effects. Hayes and colleagues (2012) describe committed action as "values-based action that occurs at a particular moment in time that is deliberately linked to creating a pattern of action that serves the value". Nordin et al. (2001) reported that discrepancy between importance of values and values attainment (comparable to committed action) was associated with more anxiety and depression symptoms in gastrointestinal cancer patients.

The purpose of the current study was to examine the association of values and committed action on physiological responses to stress. Following a discussion of stress and the consequences associated with high stress levels, a review of coping strategies, the relationship between values and stress, and the relationship between committed action and stress is presented.

Stress: Psychological and Physical Consequences

Stress has been defined by Hans Selye as a nonspecific response of the body to any demand or unexpected event in the environment that requires adjustment (Selye, 1956). Stressors are generally categorized as acute (short-term) or chronic (long-term) (McGonagle et al., 1990). However, more recent studies have discovered that it is one's perceived stress level or reaction to

the stressor that determines the stressor's impact (Stawski et al., 2008). Thus, stress is defined as one's subjective perspective of his or her stressfulness (Cohen & Williamson, 1988).

Physiologically, when presented with a stressor the autonomic nervous system (ANS) and the hypothalamic pituitary axis (HPA) are often activated simultaneously by the hypothalamus (Chida & Hamer, 2008). Within the ANS lies the sympathetic nervous system which sends signals through the autonomic nerves to the adrenal glands. These glands respond by releasing epinephrine (adrenaline) into the bloodstream. The circulation of epinephrine brings about several physiological changes or cardiovascular reactivity (e.g., increase in heart rate, pulse rate, blood pressure, breathing). These changes happen so quickly that individuals aren't aware of them. As the initial surge of epinephrine subsides, the hypothalamus activates the second component of the stress response system, the HPA axis. The HPA axis relies on a series of hormonal signals to keep the sympathetic nervous system activated. As long as the brain perceives something to be dangerous or perceives a stressor, the hypothalamus releases corticotropin-releasing hormone (CRH) which travels to the pituitary gland, triggering the release of adrenocorticotropic hormone (ACTH). This hormone travels to the adrenal gland and prompts the release of cortisol. The body thus stays on high alert.

In addition to continuing to activate the sympathetic nervous system, cortisol enhances metabolic activity and elevates blood sugar levels and other nutrients (Kalat, 2009). Moderate levels of cortisol are beneficial when facing a stressful situation as it improves attention and memory formation and enhances immune system functioning. However, prolonged increases of cortisol impair memory and the immune system. Likewise, cardiovascular reactivity can be helpful during fight or flight responses, but some individuals are said to have a greater and/or prolonged response than what is typical. According to Obrist (1981) an exaggerated

physiological response to acute stressors can lead to cardiovascular dysfunction such as hypertension or coronary heart disease.

Prolonged and high levels of stress have been linked to suppressed immune system activity, hypertension, diabetes, cardiovascular disease, and heart disease (Rawson et al., 2001; Archer & Carroll, 2003; Tartaro, Lueken, & Gunn, 2005). According to the American Heart Association (2009), excluding congenital heart defects, more than one in three people have some form of heart disease. Heart disease is affecting Americans at increasingly younger ages. Compared to Caucasians, African Americans have a higher prevalence of heart disease (American Heart Association, 2009).

Wong and colleagues (2006) have identified four psychological sources of stress: catastrophes, major life events, acculturative stress, and everyday hassles. Catastrophes test the individual's ability to adapt. They include natural disasters (e.g. earthquakes, hurricanes, and tornados), as well as tragedies resulting from human error (e.g. toxic spills, nuclear accidents, transportation accidents). Major life events such as illness or death of a loved one require significant adjustments in almost all aspects of life. Acculturative stress involves adapting to new culture. Lastly, everyday hassles are minor daily events that are distressing, frustrating, and irritating (e.g. slow-moving traffic, long supermarket lines, lost keys).

DeLongis, Folkman, and Lazarus (1988) examined the somatic and psychological effects of common everyday hassles in a sample of 75 married couples ranging in age from 26 to 54 years. Participants were administered measures of emotional support, self-esteem, daily health, daily hassles, and somatic symptoms. Results suggested an inverse relationship between daily hassles and health and psychological well-being. Reported somatic symptoms included headaches; musculoskeletal symptoms such as shoulder pain, backaches, and swollen ankles;

digestive system complaints such as nausea and abdominal cramping; and respiratory system symptoms such as nasal congestion, flu, cough, and sore throat.

Miczo, Miczo, and Johnson (2006) examined the relationship between perceived stress and illness-relevant variables (symptoms, illness attitudes, illness responses) in first-year college students. Measures of perceived stress, symptoms, and illness attitudes and response were administered. Analyses revealed a significant positive relationship between perceived stress and symptom frequency, and a negative relationship between illness attitudes and perceived stress. The authors suggested that individuals with higher stress levels experience more illness related symptoms. However, although potentiating more illness, the authors recommended that students who are more stressed should not be freed from everyday obligations.

Rawson and colleagues (2001) examined the interrelationships of stress, anxiety, depression, and physical illness in a college sample. Measures of anxiety, life experiences (stress), depression, and health quality were administered to 184 undergraduate students. Females (n=145) and freshmen (n=77) dominated this sample. Analyses revealed significant, positive relationships between stress levels and illness, anxiety and illness, and depression and illness.

Vedhara and Nott (1996) examined the immunological consequences of examination stress. Sixteen undergraduates and 14 controls (research or administrative staff) were given stress and immunological functioning questionnaires to evaluate stress levels and quality of health 5 to 10 days prior to final examinations (for those in the examination group). Results revealed significantly higher stress levels in the examination group relative to the non-examination group. Moreover, individuals experiencing greater stress, independent of examination status, had lower immune function scores. Edwards et al. (2001), Hughes (2005), and Bayram and Bilgel (2008)

have also reported a relationship between elevated stress levels and psychological and physical health issues.

Coping

The above review indicates that prolonged exposure to stress has been linked to psychological and physiological ailments such as depression, hypertension, heart disease, and anxiety (Tartaro et al, 2005). More specifically, perceived stress or perceptions of one's ability to effectively cope with the event contribute to the impact of challenging events on emotional and physical health (Stawski et al, 2008).

Coping may be categorized as problem-focused or emotion-focused. Problem-focused coping is designed to alter sources of stress by planning, suppression of competing activities, and seeking instrumental social support. When attempting to reduce or manage emotional distress associated with stressful situations, emotion-focused coping techniques are generally used. This type of coping includes seeking emotional social support, positive reinterpretation of the stressful event, acceptance, denial, and religious practices (Carver et al., 1989).

Gross and Levenson (1993) examined the effects of emotional suppression on cardiovascular reactivity in 85 participants. Participants were randomly assigned to one of two conditions. In the suppression condition, participants were asked to suppress all visible signs of emotion while watching a film known to elicit disgust. In the no suppression condition, participants watched the film without the aforementioned instructions. During the film, physiological reactivity (pulse rate, heart rate, skin conductance) was continuously recorded. Analyses revealed that relative to no suppression participants, suppression participants showed greater decreases in heart rate and pulse rate. However, suppression participants showed greater

increases in skin conductance. The authors suggested that though the results were mixed, suppression may be associated with lower levels of arousal.

In 2008, van Osch and colleagues investigated the effects of coping planning on relapse prevention in smoking cessation. Coping planning for stressful events is essential to relapse prevention because stress can trigger relapse (Brady & Sonne, 1999). Participants were randomly assigned to either a control group or a planning group. The planning group was asked to formulate 3 coping plans. Analyses revealed that long-term abstinence rates were higher for the planning group when compared to the control group. The authors suggest that planning may be a key component of establishing long-term effects regarding health behaviors.

Warrenburg and colleagues (1989) investigated the relationship between denial of illness and blood pressure reactivity in medical patients. Measures of illness denial, psychological symptomatology, and social desirability were administered. Blood pressure (systolic and diastolic) was recorded while individuals participated in a stressful interview. Analyses revealed that denial was negatively correlated with systolic blood pressure. Denial was also associated with smaller increases in blood pressure throughout the entire experiment. The authors suggested that avoidant coping strategies like denial may lead to reduced physiological arousal.

Edmondson and colleagues (2005) investigated the roles of spirituality and religiosity (religious activity, dedication and belief) in self-reported physical health and the association between spirituality and cardiovascular responses in 52 female college students. Measures of spiritual well-being, subjective well-being, and physical symptoms were administered. Blood pressure and heart rate measurements were also taken in 2-minue intervals. Analyses revealed that higher levels of spirituality were related to fewer health symptoms. Additionally, higher levels of spirituality and religiosity were associated with smaller increases in systolic blood

pressure and smaller increases in heart rate. The authors suggested that spirituality may be related to lower levels of reactivity which may be predictive of incidences of cardiovascular illness.

Numerous studies indicate that social support may mitigate the impact of stress. Phillips, Gallagher, and Carroll (2009) examined the effects of social support variables on cardiovascular reactivity to acute stress (difficult arithmetic tasks) in a sample of 112 female undergraduate students. Participants were asked to perform difficult arithmetic tasks. During tasks participants were accompanied by a friend or stranger, who remained silent or offered scripted encouragement. Blood pressure (systolic and diastolic) and heart rate were measured intermittently using a semi automatic-oscillometric blood pressure monitor. Relative to control condition, lower levels of cardiovascular reactivity were observed in the active support from friend condition. It was suggested that social support is more effective when it comes from a friend who provides active support.

In addition to data suggesting the beneficial impact of coping on cardiovascular reactivity to perceived stressors, considerable data exists noting that coping also has a positive effect on psychological indicators of stress. Haney (2004) examined the effect of cognitive restructuring (reinterpretation of stressful event), a form of emotion-focused coping, and relaxation on anxiety in female athletes. Seventy-one participants were given an anxiety measure and randomly assigned to either the relaxation group or the cognitive intervention group. Cognitive intervention involved helping participants identify how cognitive self-statements affect behavior and emotions in stressful situations, and introducing a variety of ways to cope effectively with stressful situations (e.g. changing negatives to positives through role-play, imagery). Analyses revealed that both the relaxation and cognitive group displayed reductions in anxiety levels.

However, the relaxation group had a lower level of anxiety post-treatment. It was suggested that cognitive and relaxation interventions are effective in reducing anxiety.

Acceptance, another form of emotion-focused coping, has been studied by several researchers in the form of Acceptance and Commitment Therapy (ACT) interventions (McConachie et al., 2014; Block & Wulfert, 2000; Levitt, Brown, Orsillo, & Barlow, 2004). ACT is a behavioral therapy based on functional, contextual model with an emphasis on increasing the flexibility of one's behavioral repertoire and decreasing maladaptive behaviors (Hayes, 2008). ACT is considered a "third wave" behavioral therapy that focuses not merely on symptom reduction (as with traditional cognitive behavioral therapies), but on increasing functioning and goal-directed activity (Arch & Craske, 2008).

McConachie and colleagues (2014) examined the effects of acceptance and mindfulness-based stress management treatment for 120 staff involved in direct care of individuals with intellectual disabilities. Participants were given measures of psychological distress, psychological well-being, work stressors, thought suppression, and psychological inflexibility, and randomly assigned to a control condition or intervention condition where individuals attended an Acceptance and Mindfulness Workshop. Pre and post-treatment comparisons revealed those in the intervention condition had significantly lower levels of distress when compared to controls. The authors suggested that acceptance and mindfulness based interventions may combat stressors associated with working with challenging populations.

The research indicates that several forms of coping such as social support, religion, and acceptance have been linked to decreased psychological and physical reactivity. Coping has been shown to buffer the potential adverse effects of emotions associated with stress.

Values and Committed Action

Values refer to tangible and intangible entities of relative worth, utility, or importance (Merriam Webster Online). From an Acceptance and Commitment Therapy (ACT) perspective, values are viewed as freely chosen and verbally constructed consequences of evolving patterns of activity. Engagement in valued behavior results in intrinsic reinforcement (Wilson & DuFrene, 2009). Wilson and colleagues (2010) condense the broad concept of values into ten life domains, family (other than parenting and intimate relations), marriage/couples/intimate relationships, parenting, friendship, work, education, recreation, spirituality, citizenship, and physical self-care.

From an ACT perspective, human suffering is ubiquitous. Loved ones die and careers end. Both of these profound events along with other life-stressors can have tremendous effects on psychological and physiological well-being. However, values can motivate behavior in the face of personal adversity (Hayes et al., 2012). This is where the idea of values is taken a step further and turned into committed actions. For instance, one may no longer feel like exercising after a long day at work. However, if health is a value, engaging in the act of exercising even when one does not feel like doing so may occur.

Personal values have been identified as prominent factors that may affect quality of life. Fegg and colleagues (2005) evaluated the relationship between personal values and quality of life in 75 patients with cancer. Participants were administered measures of value importance and quality of life. Analyses indicated that conservation values (security, conformity, tradition) were associated with greater quality of life.

Creswell and colleagues (2007) investigated the mediational effects of values on the relationship between expressive writing and cancer-related health benefits. Measures of life

satisfaction, mood state, and physical symptoms were administered. Heart rate was also recorded. Participants were randomly assigned to one of three writing groups, emotional expression (writing deepest thoughts and feelings regarding experience with breast cancer), benefit-finding (positive thoughts and feelings regarding experience with breast cancer), and fact writing control (facts regarding cancer and its treatment). Judges coded each essay and identified value affirmations. Analyses revealed that affirming values mediated the relationship of writing conditions on reductions in physical symptoms. Analyses also revealed a positive relationship between life satisfaction and values affirmation. The authors suggested that the underlying mechanism of the benefits of expressive writing is values affirmation.

It has also been found that committed action contributes to greater health outcomes. Committed action occurs when an individual takes action to move in a valued direction (Hayes et al., 2012). It is not the same as predictions or promises. While committed action may extend into the future, it takes place in the here and now. It should be noted that committed action is not constantly occurring, yet when there is discrepancy between values and actions and one chooses to expand the value or action, committed action has occurred. For example, if an individual values family and has not spoken to or seen family members in weeks, one may make a conscious effort to contact family members in that moment and designate family time once a week. That individual has expanded action by engaging in behaviors that are in line with values (family).

Values and Stress

Many studies research values by having participants affirm values. Affirming values is often achieved by writing about dedication to those values. This concept is based on self-affirmation theory which posits that affirming valued sources of self-worth such as important

personal qualities, values, or relationships can buffer against stress. It has been suggested that self-affirmation may reduce the impact that threats (e.g., stressors) have on physiological and psychological responses to stress (Sherman & Cohen, 2006).

Several studies indicate that there is a negative relationship between affirmation of values and stress. Knoop (1994) examined the relationship between work values and work stress. Measures of stress and work values were administered to 607 elementary teachers and administrators. Participants were asked to affirm values by rating importance and indicating whether or not they experienced these important values in their job. Analyses revealed intrinsic work values such as achievement, recognition, responsibility, and value of the work were negatively correlated with stress. Knoop suggested that if a work organization provides people with features they value, it will limit work stress.

Sherman and colleagues (2009) examined whether providing individuals with opportunities to affirm values buffered cumulative catecholamine responses to examination stressors in a sample of 54 undergraduate students. Participants were asked to complete psychosocial measures, health screening questionnaires, and post-examination stressor questions. Four urine samples were collected over 15 days. Participants were randomly assigned to a self-affirmation condition or a no-affirmation control. Those in the self-affirmation condition wrote about a highly ranked value while the control group wrote about a value ranked as least important. Relative to control conditions, participants who completed self-affirmations weeks prior to midterm examinations had reduced epinephrine responses during the midterm examination period. It was suggested that affirmation of values served as a physiological buffer during stressful periods.

Creswell and colleagues (2005) examined the effects of affirming personal values on neuroendocrine and psychological stress responses in 85 undergraduate students. Prior to the study, participants completed a health screening measure and questionnaires measuring self-resources. Self-resource questionnaires measured self-esteem, self-worth, values, and optimism. Blood pressure, cortisol levels, and heart rate readings were recorded and participants were randomly assigned to a value affirmation condition or a control condition. Participants were administered a stress task involving a speech task and mental arithmetic. Analyses revealed that participants in the value affirmation condition displayed lower psychological stress and significantly lower cortisol responses to the stress task than did controls. However, no differences in cardiovascular stress responses (blood pressure and heart rate) were observed. While effect sizes were relatively small, the authors suggested that cardiovascular and neuroendocrine stress responses may be more compromised in those who do not affirm personally important values.

Committed Action and Stress

Like values, committed action has been identified as contributing to treatment efficacy in ACT treatments of various problems such as depression, anxiety, and chronic pain (Michelson et al., 2011; McCracken & Vowles, 2008; McCracken & Yang, 2006). Committed action is described as values-based action that occurs at a particular moment in time that is deliberately linked to creating a pattern of action that serves a value (Hayes et al., 2012). For example, one who values education would complete homework assignments even though he or she may have had a long and difficult day at work.

Wittig-Berman and Lang (1990) examined the effects of committed action on work-related stress reactions and alienation in 270 graduate students. Measures of committed action,

psychological symptoms of stress, physical symptoms of stress (e.g., sleeping problems, headaches, stomach problems), and alienation were administered. Analyses revealed that committed action was negatively correlated with psychological and physical symptoms of stress. The authors suggested that increasing committed action may be an effective stress prevention technique.

Nordin and colleagues (2001) examined the effect of values and values attainment (comparable to committed action) discrepancy on anxiety and depression symptoms in 85 gastrointestinal cancer patients. Measures of life values, anxiety, and depression were administered. Values and values attainment discrepancy was derived by comparing ratings (using statistical analyses) for value importance and attainment for each value domain. For example, if one rated religion as a 7 in terms of importance and rated attainment in the religion domain as a 2, this is considered discrepant. Analyses revealed patients who endorsed more anxiety and depression symptoms reported higher discrepancies between values and committed action. The authors suggested that a balance between values and committed action may be important for psychological well-being.

Michelson and colleagues (2011) examined the role of committed action in generalized anxiety disorder (GAD). Fifty treatment-seeking participants were given measures of affective control, acceptance and action, valued living, and quality of life. Analyses revealed that individuals diagnosed with GAD reported lower levels of committed action compared to individuals in the non-anxious group. Additionally, reduction in valued action was predictive of diminished quality of life. The authors suggested that individuals who are anxious may restrict activities that are consistent with personal values resulting in diminished quality of life.

Chronic pain is a stressor that affects quality of life, physical functioning, emotional functioning, and social functioning (Branstetter-Rost et al., 2009; McCracken & Yang, 2006). Branstetter-Rost and colleagues (2009) investigated the effects of an ACT-based acceptance intervention on pain tolerance using a cold-pressor task. One hundred three participants were randomly assigned to one of three groups. In the acceptance only group, participants experienced 20 minutes of training and didactics consistent with the ACT model. The focus was on relinquishing the need to control, defusion exercises (attempts to alter the undesirable functions of thoughts and other private events), imagery, willingness to experience aversive thoughts and sensory stimulation, and acceptance of aversive thoughts and sensory stimulation. The acceptance plus values group participated in the above and a 2-minute imagery exercise involving endurance of physical pain for the purpose of a top ranked valued-life area. A third group served as the control. Analyses revealed that both treatment conditions yielded higher pain tolerance during the cold-pressor task than the control group. However, the group receiving the values component demonstrated a higher level of pain tolerance when compared to the group that only received the acceptance intervention. The results suggest that values-based action contributes uniquely to pain tolerance beyond acceptance alone.

McCracken and Yang (2006) examined the role of values in 140 chronic pain patients. Measures of chronic pain values, depression, chronic pain acceptance, pain anxiety, and daily functioning were administered. Analyses revealed discrepancy between value importance and valued-action. Additionally, this discrepancy was positively correlated with physical disability, psychosocial disability, pain-related anxiety, and interference with daily functioning. Valued-based action, on the other hand, was negatively correlated with the aforementioned variables.

The authors suggested that valued-living may buffer against disability and pain-related anxiety among patients with chronic pain.

McCracken and Vowles (2008) investigated the effects of acceptance and values-based action on the emotional, physical, and social functioning in 115 chronic pain patients. Measures of pain acceptance, values and valued-living, emotional functioning, and disability were administered. Analyses indicated that values-based action is a significant predictor of pain-related distress. Authors suggested that acceptance and values-based action may be predictive of physical and psychosocial functioning over time.

The above review reveals that high stress levels have been associated with depression, anxiety, hypertension, suppressed immune system activity, diabetes, and cardiovascular disease (Tartaro et al., 2005; Rawson et al., 2001). However, several coping mechanisms have been shown to decrease levels of stress. One form of coping is values. Values have been implicated in reducing both psychological and physiological indicators of stress such as catecholamine responses and cardiovascular reactivity (Fegg et al., 2005; Creswell et al., 2007; Sherman & Cohen, 2006; Creswell et al., 2005). Research suggests that engaging in valued-living, committed action, can greatly increase quality of life through decreased distress, disability, anxiety, pain, and physiological reactivity (Michelson et al., 2011; McCracken & Vowles, 2008; McCracken & Yang, 2006).

Committed action has been shown to contribute to treatment efficacy in ACT treatments of depression, anxiety, and chronic pain (Michelson et al., 2011; McCracken & Vowles, 2008; McCracken & Yang, 2006). While studies have reported that values and committed action are associated with lower levels of stress, anxiety, depression, and reduced chronic physiological

changes, few studies have examined their effects on acute responses (e.g., cardiovascular reactivity) to stress.

The purpose of the current study was to examine the effects of values and committed action on physiological responses (blood pressure and heart rate) to stress. College students completed measures that assessed stress levels, depression, anxiety, values, and committed action. Participants were also exposed to a laboratory based stress manipulation. Heart rate and blood pressure was recorded in 2-minute intervals beginning 10 minutes prior to the stress manipulation and continuing for 10 minutes following the stress manipulation. During the stress manipulation, heart rate and blood pressure were recorded in 50-second intervals.

It was expected that in the prediction of overall stress, committed action would account for variance beyond that accounted for by values. Similarly, in the prediction of both overall depression and anxiety levels, committed action would account for variance beyond that accounted for by values. Lastly, it was expected that in the prediction of short-term changes in blood pressure and heart rate following a stress manipulation, committed action would account for variance beyond that accounted for by values.

METHODOLOGY

Participants

The sample consisted of 107 students attending a public university located in the southeastern region of the United States. This sample primarily consisted of Caucasian students (59.8%), with the next largest ethnic group being African Americans (28%), followed by Asian American/Asian (8.4%), Multiracial (2.8%), and Other (.9%). Participants' ages ranged from 18 to 53 years, with the majority (81.3%) being 18 to 20 years old. With regard to important assignments due, 35.9% of the sample had an important assignment due within 1 to 2 days of completing the study.

Measures

Demographic Questionnaire

A demographic survey was administered to determine participants' age, sex, classification, race/ethnicity, spiritual importance, affiliation with campus organizations, and whether an important assignment was due in the near future (see Appendix A).

Committed Action Questionnaire (CAQ; McCracken, 2013)

The CAQ is an 18-item measure that assesses valued-living (see Appendix B). Participants are asked to "rate the truth of each statement as it applies to you". Items are rated on a scale from 0 (never true) to 6 (always true). Scores are indicators of an individual's sense of how closely he or she is behaving in concert with important personal values. This measure has

demonstrated good internal consistency reliability with a Cronbach alpha of .87 (McCracken, 2013). Cronbach's alpha for the present study was .86.

Bull's-Eye Values Survey (BEVS; Lundgren et al., 2012)

The BEVS is a questionnaire that measures personal values and committed action (see Appendix C). Participants are first asked to identify values by writing about qualities they have or would like to develop in four life domains (Work/Education, Relationships, Leisure, Health/Personal Growth). In the second part of the questionnaire, participants are presented with a "target" consisting of seven concentric circles (or bands), divided into four life domains (Work/Education, Relationships, Leisure, Health/Personal Growth). Participants rate the degree to which they have successfully lived the value by selecting a band at the appropriate distance from the "Bull's Eye" (7 = selecting band within Bull's Eye circle, 1 = selecting band with outermost circle). A Committed Action score is obtained by summing ratings across domains. This measure demonstrated good test-retest reliability ranging from .71-.85 (Lundgren et al., 2012). Cronbach's alpha for the present study was .66. In the present study, values were coded based on the number of qualities participants indicated they possessed or wanted to develop (0 = zero qualities, 1 = 1 quality, 2 = 2 or more qualities).

Perceived Stress Scale (PSS; Cohen & Williamson, 1988)

The PSS is a 10-item measure that assesses an individual's evaluation of stressfulness of situations over the past month (see Appendix D). Participants rate their perception of stress on a 5-point Likert scale ranging from 0 (Never) to 4 (Very Often). Total scores range from 0 to 40; a score of 13 is considered average. Sample items include, "In the last month, how often have you

been upset because of something that happened unexpectedly?" and "In the last month, how often have you felt nervous and "stressed?" The Perceived Stress Scale is the most widely used instrument for measuring perception of stress and has good reliability (Baldwin, Chambliss, & Towler, 2003). Predictive validity for depression and physical symptomatology range from .52 to .76 (Cohen, Kamarck, & Mermelstein, 1983). Cronbach's alpha for the present study was .83.

Depression Anxiety Stress Scale-21 (DASS-21; Lovibond & Lovibond, 1995)

The DASS-21 was created as a short-form to the original Depression Anxiety Stress Scale (Lovibond & Lovibond, 1995; see Appendix E). This measure assesses the severity and frequency of symptoms of depression, anxiety, and stress in three subscales each consisting of seven items. The Depression, Anxiety, and Stress scales all correspond with diagnostic criteria as outlined in the DSM for depression, panic disorder, and Generalized Anxiety Disorder, respectively (Brown, Chorpita, Korotitsch, & Barlow, 1997).

The DASS-21 scales have been estimated to have good to excellent internal consistency. It does not appear to vary across racial groups, particularly Caucasians, African Americans, Hispanics, and Asian Americans. The validity of the scales has also been consistently demonstrated. The Depression Scale correlates strongly with the Beck Depression Inventory (BDI; Norton, 2007). The Anxiety Scale also correlates strongly with the Beck Anxiety Inventory (BAI; Norton, 2007). The DASS-21 uses a Likert-type scale ranging from 0 = Did not apply to me at all to 3 = Applied to me very much, or most of the time. Sample items include "I felt that life was meaningless" and "I felt I was close to panic" (Norton, 2007). Participants were asked to respond to items as they applied over the previous week. Cronbach's alphas for the present study were .89, .81, and .87 for depression, anxiety, and stress scales, respectively.

Physiological Measures

Blood pressure (systolic and diastolic) and heart rate were measured in 2-minute intervals during rest and recovery periods, and in 50-second intervals during the task period using a Suntech Tango (Morrisville, NC) automated blood pressure monitor. A blood pressure cuff was placed on the non-dominant upper arm of participants. In order to assess stress responses, blood pressure and heart rate readings during the stressor tasks were averaged and subtracted from the mean of the last 3 rest period readings. Similarly, residual stress was measured by subtracting the mean of the last 3 recovery period readings from the average blood pressure and heart rate readings during the stressor task.

Laboratory Stressor

A mental arithmetic task lasting 3 minutes was administered. The task consisted of asking participants to subtract verbally by 13s from 1764 as quickly and accurately as possible without the aid of pencil and paper. Responses were monitored, and if the participant answered incorrectly, the experimenter corrected the participant, and asked him or her to continue from the last correct response (Kirschbaum et al., 1993).

Procedure

Participants were recruited through classroom announcements and an online psychological participant manager, Sona Systems. Upon entering the laboratory, informed consent was obtained, participants were assigned an identification number and asked to complete a demographic questionnaire, CAQ, DASS-21, Bull's eye Values exercise, and PSS. After, participants were invited to sit in a comfortable chair for the stress manipulation. Participants enrolled in psychology courses were offered 1 hour of extra credit for participation.

Following administration of questionnaire measures, a blood pressure cuff was placed on participant's non-dominant upper arm. Participants were instructed to rest quietly while watching a 10-minute nature video. Blood pressure and heart rate were assessed via an automated monitor.

Once baseline was complete, participants performed the mental arithmetic stressor task for a total of 3 minutes. Participants were asked to subtract serial 13's starting from 1764 as quickly as possible without making mistakes. When participants gave an incorrect response, the researcher corrected the participant. The participant was then instructed to continue subtracting serial 13's from point of the corrected response. Upon completion of the mental arithmetic stressor task, a 10-minute recovery period occurred where participants continued watching a nature video. Heart rate and blood pressure measurements were monitored and recorded every two minutes during the baseline and recovery phases, and at 50-second intervals during the arithmetic task.

Heart rate and blood pressure measurements were averaged for each period. Specifically, the last 3 baseline period measurements for heart rate and blood pressure were averaged. The first 3 recovery period measurements for heart rate and blood pressure were averaged. All 3 stressor task measurements were averaged. Change scores were computed by subtracting the average heart rate and blood pressure measurements during the stressor task from the baseline phase and subtracting average heart rate and blood pressure measures during stressor task from recovery phase.

RESULTS

Preliminary Analyses

Descriptive statistics were computed for all variables. Examination of skew and kurtosis revealed that 3 variables were not normally distributed: Perceived Stress Scale (PSS), DASS-21 Anxiety subscale, and Bull's eye Values Survey (BEVS). After visual inspection of these variables, they were transformed using reflect and logarithm (PSS) and square root (MSS, DASS-21 Anxiety subscale, & BEVS) transformation procedures as suggested by Pallant (2010). Analyses were performed using both transformed and non-transformed data. Because differences in outcomes were observed with transformed and non-transformed scores, transformed data was analyzed and discussed.

Tests for multivariate outliers were conducted using Mahalanobis distance; no outliers were identified. Little's chi-square statistic was performed revealing missing values were missing completely at random (MCAR). Expectation maximization algorithm was used to estimate values for participants with missing data (N = 14). The final dataset consisted of 107 participants whose demographic information can be seen in Table 1 (Appendix F). Mean scores on primary measures are presented in Table 2 (Appendix F), and a correlation matrix of dependent variables, using transformed variables, is presented in Table 3 (Appendix F).

To determine whether stress manipulation significantly aroused participants and recovery period was sufficient in allowing physiological arousal to significantly decrease, a series of one-way repeated measures ANOVAs was computed to examine differences in physiological measures' change score means for baseline, stress task, and recovery scores. The first one-way

repeated measures ANOVA was conducted to compare systolic blood pressure measurements during baseline, stress task, and recovery. There was a significant effect for systolic blood pressure changes, Wilks' Lambda = .415, F (2, 105) = 73.970, p < .001, multivariate partial eta squared = .585. Systolic blood pressure increased from baseline to stress task, and decreased from stress task to recovery.

The second one-way repeated measures ANOVA compared diastolic blood pressure measurements during baseline, stress task, and recovery. There was a significant effect for diastolic blood pressure changes, Wilks' Lambda = .446, F (2, 105) = 65.144, p < .001, multivariate partial eta squared = .554. Diastolic blood pressure increased from baseline to stress task, and decreased from stress task assessment to recovery.

The final one-way repeated measures ANOVA compared heart rate measurements during baseline, stress task, and recovery. There was also a significant effect for heart rate changes, Wilks' Lambda = .364, F (2, 105) = 185.298, p < .001, multivariate partial eta squared = .636. Heart rate increased from baseline to stress task, and decreased from stress task to recovery.

Primary Analyses

A series of hierarchical multiple regressions were computed to examine associations between values, committed action (CAQ), overall stress (perceived stress), anxiety, depression, immediate stress (following stress manipulation), and cardiovascular reactivity. In order to determine the role of values and committed action in the prediction of perceived stress (PSS), the first model included demographic variables (age, sex, race/ethnicity, due date of important assignments, importance of spirituality/religion) and depression and anxiety symptomatology entered in Step 1. The model was significant [R = .703, R^2 = .494, Adjusted R^2 = .458, ΔR^2 = .494, $F\Delta$ (7, 97) = 13.547, p = <.001]. Examination of coefficients of individual variables

revealed that sex and depression symptomatology contributed significant predictive value to the model (p = <.001 and p = <.001), while the other variables did not. The addition of values entered in step 2 did not add significant explanatory power to the model [R = .710, R^2 = .504, Adjusted R^2 = .462, ΔR^2 = .009, $F\Delta$ (1, 96) = 1.817, p = .181]. The addition of committed action variables in step 3 accounted for additional variance [R = .747, R^2 = .557, Adjusted R^2 = .515, ΔR^2 = .054, $F\Delta$ (1, 95) = 11.526, p = .001].

The second hierarchical multiple regression examined the association of values and committed action in the prediction of DASS depression scale scores. Predictors entered in Step 1 included demographic variables, PSS, and anxiety symptomatology. This model was significant [R = .638, R^2 = .407, Adjusted R^2 = .371, ΔR^2 = .407, $F\Delta$ (6, 99) = 11.321, p = <.001]. Examination of coefficients of individual variables revealed that anxiety symptomatology contributed significant predictive value to the model (p <<.0015), while other variables did not. The addition of values entered in step 2 added significant explanatory power to the model [R = .658, R^2 = .433, Adjusted R^2 = .364, ΔR^2 = .026, $F\Delta$ (1, 98) = 4.483, p = .037]. Similarly, the addition of committed action variable in step 3 added significant explanatory power to the model [R = .700, R^2 = .491, Adjusted R^2 = .449, ΔR^2 = .058, $F\Delta$ (1, 97) = 10.990, p = .001].

Hierarchical regression was also performed to examine whether values and committed action accounted for variance in the prediction of DASS anxiety scale scores. Entered in Step 1 were demographic variables, PSS, and depression symptomatology. The model was significant [R = .659, R^2 = .434, Adjusted R^2 = .393, ΔR^2 = .434, $F\Delta$ (7, 97) = 10.626, p = <.001]. Examination of coefficients of individual variables revealed that depression symptomatology contributed significant predictive value to the model (p < <.0015) and important assignment due in the near future was trending (p = .059). The addition of values entered in step 2 did not add

significant explanatory power to the model [R = .662, R^2 = .438, Adjusted R^2 = .391, ΔR^2 = .004, $F\Delta$ (1, 96) = .619, p = .433]. The addition of committed action variables in step 3 also failed to add significant explanatory power to the model [R = .662, R^2 = .438, Adjusted R^2 = .384, ΔR^2 = <.001, $F\Delta$ (1, 95) = .001, p = .976].

Hierarchical regression was performed in order to examine whether committed action accounted for variance beyond that accounted by values in the predictions of immediate stress, expressed by stressor task diastolic blood pressure change scores. Demographic variables, PSS, and depression and anxiety symptomatology were entered in Step 1. The model was not significant [R = .301, R^2 = .091, Adjusted R^2 = .015, ΔR^2 = .091, $F\Delta$ (8, 96) = 1.199, p = .308]. The addition of values entered in step 2 added significant explanatory power to the model [R = .365, R^2 = .133, Adjusted R^2 = .051, ΔR^2 = .042, $F\Delta$ (1, 95) = 4.620, p = .034]. The addition of committed action variables in step 3 failed to add significant explanatory power to the model [R = .368, R^2 = .136, Adjusted R^2 .044, ΔR^2 = .003, $F\Delta$ (1, 94) = .273, p = .602].

Hierarchical regression was performed in order to examine whether committed action accounted for variance beyond that accounted for by values in the prediction of immediate stress (expressed by stressor systolic blood pressure change scores), demographic variables, PSS, and depression and anxiety symptomatology were entered in Step 1. The model was not significant [R = .246, R^2 = .060, Adjusted R^2 = -.007, ΔR^2 = .060, $F\Delta$ (7, 98) = .901, p = .509]. The addition of values entered in step 2 did not add significant explanatory power to the model [R = .281, R^2 = .079, Adjusted R^2 = .003, ΔR^2 = .018, $F\Delta$ (1, 97) = 1.947, p = .166]. The addition of committed action variables in step 3 added significant explanatory power to the model [R = .353, R^2 = .124, Adjusted R^2 = -.042, ΔR^2 = .045, $F\Delta$ (1, 96) = 4.971, p = .028].

The final hierarchical regression examined whether committed action accounted for variance beyond that accounted for by values in the prediction of immediate stress, expressed by heart rate change scores. Demographic variables, PSS, and depression and anxiety symptomatology were entered in Step 1. This model was not significant [R = .156, R^2 = .024, Adjusted R^2 = -.045, ΔR^2 = .024, $F\Delta$ (7, 98) = .348, p = .930]. The addition of values entered in step 2 did not add significant explanatory power to the model [R = .169, R^2 = .028, Adjusted R^2 = -.052, ΔR^2 = .004, $F\Delta$ (1, 97) = .424, p = .516]. The addition of committed action variables in step 3 added significant explanatory power to the model [R = .369, R^2 = .136, Adjusted R^2 = -.030, ΔR^2 = .055, $F\Delta$ (1, 96) = 11.972, p = .001].

Additional analyses were conducted to examine residual stress (recovery diastolic blood pressure scores subtracted from task score averages). Hierarchical regression was performed to examine whether values and committed action accounted for variance in the prediction of residual diastolic blood pressure. Demographic variables, PSS, and depression and anxiety symptomatology were entered in Step 1. The model was not significant [R = .346, R^2 = .120, Adjusted R^2 = .047, ΔR^2 = .120, $F\Delta$ (8, 96) = 1.637, p = .124]. The addition of values entered in step 2 added significant explanatory power to the model [R = .413, R^2 = .174, Adjusted R^2 = .092, ΔR^2 = .051, FΔ (1, 95) = 5.792, p = .018]. Examination of coefficients of individual variables revealed that males had less residual stress than females. Greater values scores were positively correlated with residual stress (recovery diastolic blood pressure scores subtracted from task score averages). However, the addition of committed action variables in step 3 failed to add significant explanatory power to the model [R = .417, R^2 = .174, Adjusted R^2 = .086, ΔR^2 = .004, FΔ (1, 94) = .403, p = .527].

Lastly, a hierarchical regression was performed in order to examine whether values and committed action accounted for variance in the prediction of residual stress as indicated by difference between heart rate recovery scores and tasks averages (See Table 2). Demographic variables, PSS, and depression and anxiety symptomatology were entered in Step 1. The model was not significant [R = .159, R^2 = .025, Adjusted R^2 = -.056, ΔR^2 = .025, $F\Delta$ (8, 96) = .312, p = .960]. The addition of values entered in step 2 did not add significant explanatory power to the model [R = .221, R^2 = .049, Adjusted R^2 = -.041, ΔR^2 = .024, $F\Delta$ (1, 95) = 2.358, p = .128]. However, the addition of committed action variables in step 3 added significant explanatory power to the model [R = .402, R^2 = .162, Adjusted R^2 = -.073, ΔR^2 = .113, $F\Delta$ (1, 94) = 12.671, p = .001].

DISCUSSION

Personal values have been identified as prominent factors that may affect quality of life. Furthermore, values can motivate behavior in the face of personal adversity (Hayes et al., 2012). Defined values transform into committed action. In the current study, in line with theoretical expectations, values and committed action accounted for variance in the prediction of depressive symptomatology. Individuals who reported engaging in behavior consistent with personal values reported fewer symptoms of depression. It is possible that this relationship may be explained by foundational behavioral concepts. Skinner (1953) proposed that depression was associated with an interruption of established sequences of healthy behavior that had been positively reinforced by the social environment. Subsequent expansions of this model suggested that reduction of positively reinforced healthy behavior was attributed to a decrease in the number and range of reinforcing stimuli available to an individual for such behavior, and/or limited skill in obtaining reinforcement (Lewinsohn, 1974).

While values and committed action each accounted for independent variance in the prediction of depression, this relationship did not hold for other indicators of stress. For several stress indicators, only values accounted for independent variance while committed action accounted for variance in the prediction of several other stress measures. Moreover, the CAQ and BEVS were not significantly correlated. As reflected above, these findings are inconsistent with the tenets of ACT that emphasize the importance of the connection between these constructs.

One potential explanation accounting for these unexpected findings concerns the BEVS. Although the measure of values (BEVS) has demonstrated adequate reliability, limited validity data have been presented for this measure. More specifically, Lundgren and colleagues (2012) conducted a psychometric evaluation of the BEVS, but only included discriminant and content validity for the valued action subscale. Validity data were not reported for the values subscale. Other researchers using the BEVS also have failed to present validity data for this measure (Ly et al., 2012; Murrell & Kapadia, 2011). Additionally, Schwartz (2006) argued that values can be domain specific, as well as transcend specific actions and situations. For example, discipline and honesty are values that may be relevant across several domains (e.g., work, school, sports, and relationships). He argued that measures of values fail to assess for "basic" values that are relevant across many situations. Failure to find values accounting for variance in the prediction of perceived stress, anxiety, immediate stress (systolic blood pressure and heart rate), and residual stress (heart rate) may be due to the BEVS failure to assess basic values. It might prove beneficial for future work to include a focus on developing a psychometrically sound values measure.

Although the expected relationship between values and committed action was not consistently demonstrated in the current study, it is important to note that Pearson correlations revealed that the CAQ was correlated with perceived stress, depression, anxiety, stress, systolic blood pressure, heart rate, residual systolic blood pressure, and residual heart rate. These relationships are consistent with the notion that actively engaging with your environment likely enhances reinforcement density and may be an effective manner of coping with stress (Carver & White, 1994; Jakupcak et al., 2006).

While the current findings provide very limited support for the relationship among values, committed action, and stress, several additional method issues should be noted. Current findings may have been affected by the stressor task employed. Prior laboratory-based stressor task studies have reported average systolic blood pressure changes of 25 points, average diastolic change scores of 13 points, and heart rate changes of 11 points (Turner et al., 1987; Bernardi et al.; 2000; Hjortskov et al., 2004). In the current study, the stressor task resulted in considerably smaller change scores (~7 point systolic and diastolic change and 9 point heart rate change). Future work should consider employing a more potent stressor task. For example the Trier social stress test involves participants presenting to two trained interviewers a detailed speech describing why they should be hired for their dream. These instructions are followed by a 3-minute anticipatory period, a 5-minute public speaking task, and a 5-minute mental arithmetic task in front of an evaluative panel of two adults. This task has been shown to evoke significant levels of stress (Kirschbaum, 2010).

Another potential limitation of this study is its reliance on undergraduate participants. Students likely suffer from acute, discrete stressors while non-students tend to experience greater levels of chronic stress. Ross and colleagues (1999) assessed stressors experienced by college students. In addition to academic stressors such as exams, homework assignments, and presentations, college students reported intrapersonal stressors (38%) such as changes in sleeping habits and planning breaks/vacation (e.g., spring break, winter break). These stressors are mostly discrete and time limited (e.g., semester long courses). Non-students frequently must cope with long-term stressors associated with parenting, finances, career/work, and caregiving (from taking care of older parents) stress. They may also experience stress resulting from age related health issues (De Frias & Whyne, 2015). Future work should consider using a community sample.

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LIST OF APPENDICES

APPENDIX A: DEMOGRAPHIC QUESTIONNAIRE

1. With what race or ethnicity do you identify?
    a. African-American/Black
    b. Asian-American/Asian
    c. Caucasian/White
    d. Native American
    e. Multiracial
    f. Other
2. What is your sex?
    a. Male
    b. Female
3. What is your age? _____
4. What is your classification?
    a. Freshman
    b. Sophomore
    c. Junior
    d. Senior
    e. Graduate student
5. How many organizations are you affiliated with on campus?
    a. 0-2
    b. 3-4
    c. 5 or more
6. How important is spirituality and/or religion to you?
    a. Not at all important

b. Very unimportant

c. Somewhat unimportant

d. Neither important nor unimportant

e. Somewhat important

f. Very important

g. Extremely important

7. Do you have any important assignments in the near future (e.g., exams, papers, essays)? This does not include homework assignments.

    a. Yes

    b. No

8. If you answered yes to the previous question, when is the exam or assignment due?

    a. Today

    b. 1-2 days

    c. 3-4 days

    d. 5 or more days

APPENDIX B: COMMITTED ACTION QUESTIONNAIRE (CAQ)

Directions: Below you will find a list of statements. Please rate the truth of each statement as it applies to you by selecting a number. Use the following rating scale to make your choices. For instance, if you believe a statement is "Always True," you would select the 6 next to the statement.

0 Never true	1 Very rarely true	2 Seldom true	3 Sometimes true	4 Often true	5 Almost always true	6 Always true

1.	I am able to persist with a course of action after experiencing difficulties	0	1	2	3	4	5	6
2.	When I fail in reaching a goal, I can change how I approach it	0	1	2	3	4	5	6
3.	I can remain committed to my goals even when there are times that I fail to reach them	0	1	2	3	4	5	6
4.	When a goal is difficult to reach, I am able to take small steps to reach it	0	1	2	3	4	5	6
5.	I act impulsively when I feel under pressure*	0	1	2	3	4	5	6
6.	I prefer to change how I approach a goal rather than quit	0	1	2	3	4	5	6
7.	am able to follow my long term plans including times when progress is slow	0	1	2	3	4	5	6
8.	When I fail to achieve what I want to do, I make a point to never do that again*	0	1	2	3	4	5	6
9.	I get stuck doing the same thing over and over even if I am not successful*	0	1	2	3	4	5	6
10.	I find it difficult to carry on with an activity unless I experience that it is successful*	0	1	2	3	4	5	6
11.	I am more likely to be guided by what I feel than by my goals*	0	1	2	3	4	5	6
12.	I am able to pursue my goals both when this feels easy and when it feels difficult	0	1	2	3	4	5	6
13.	I am able to persist in what I am doing or to change what I am doing depending on what helps me reach my goals	0	1	2	3	4	5	6

14. If I make a commitment and later fail to reach it, I then drop the commitment*	0	1	2	3	4	5	6
15. I am able to incorporate discouraging experiences into the process of pursuing my long term plans	0	1	2	3	4	5	6
16. If I feel distressed or discouraged, I let my commitments slide*	0	1	2	3	4	5	6
17. I get so wrapped up in what I am thinking or feeling that I cannot do the things that matter to me*	0	1	2	3	4	5	6
18. If I cannot do something my way, I will not do it at all*	0	1	2	3	4	5	6

*Denotes negatively keyed items

APPENDIX C: BULL'S EYE VALUES SURVEY (BEVS)

CLARIFYING YOUR VALUES Deep down inside, what is important to you? What do you want your life to stand for? What sort of qualities do you want to cultivate as a person? How do you want to be in your relationships with others? Values are our heart's deepest desires for the way we want to interact with and relate to the world, other people, and ourselves. They are leading principles that can guide us and motivate us as we move through life. Values reflect what you want to do, and how you want to do it. They are about how you want to behave towards your friends, your family, yourself, your environment, your work, etc. Values are not the same as goals. Values involve ongoing action; they are like directions we keep moving in, whereas goals are what we want to achieve along the way. A value is like heading West; a goal is like the river or mountain or valley we aim to cross whilst traveling in that direction. Goals can be achieved or 'crossed off', whereas values are ongoing. (No matter how far West you go, you never reach it!) For example, if you want to be a loving, caring, supportive partner, that is a value: it involves ongoing action. In contrast, if you want to get married, that's a goal - it can be 'crossed off' or achieved. If you want a better job, that's a goal. Once you've got it - goal achieved. But if you want to fully apply yourself at work, contribute your best, and engage fully in what you're doing, that's a value: it involves ongoing action.

DIRECTIONS: To begin with, please write down your values in these 4 areas of life. Not everyone has the same values, and this is not a test to see whether you have the "correct" ones. Think in terms of general life directions, rather than in terms of specific goals. There may be values that overlap – e.g. if you value studying psychology, that may come under both Education and Personal Growth. Write down what you would value if there were nothing in your way, nothing stopping you. What's important? What do you care about? And what you would like to work towards? Your value should not be a specific goal but instead reflect a way you would like

to live your life over time. For example, to accompany your son to a football game might be a goal; to be an involved and interested parent might be the underlying value. Note! Make sure they are your values, not anyone else's. It is your personal values that are important!

1. **Work/Education**: refers to your workplace & career, education and knowledge, skills development. (This may include volunteering and other forms of unpaid work). How do you want to be towards your clients, customers, colleagues, employees, fellow workers? What personal qualities do you want to bring to your work? What skills do you want to develop?

.....

.....

.....

2. **Relationships**: refers to intimacy, closeness, friendship and bonding in your life: it includes relationships with your partner, children, parents, relatives, friends, co-workers, and other social contacts. What sort of relationships do you want to build? How do you want to be in these relationships? What personal qualities do you want to develop?

.....

.....

.....

3. **Personal Growth/Health**: refers to your ongoing development as a human being. This may include organized religion, personal expressions of spirituality, creativity, developing life skills, meditation, yoga, getting out into nature; exercise, nutrition, and addressing health risk factors like smoking.

.....

.....

.....

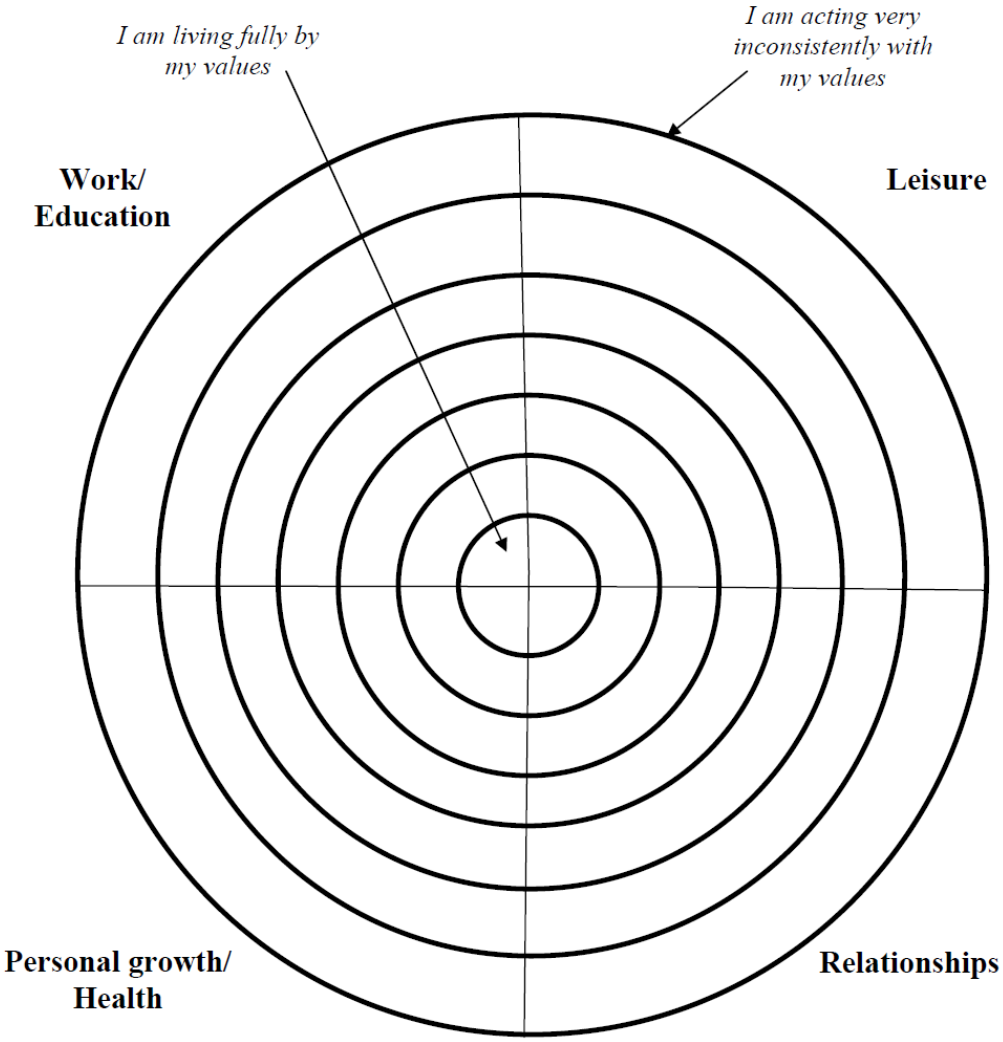
4. **Leisure**: refers to how you play, relax, stimulate, or enjoy yourself; your hobbies or other activities for rest, recreation, fun and creativity.

.....

.....

.....

THE BULL'S EYE: Read through your values, then make an X in each area of the dart board, to represent where you stand today. An X in the Bull's Eye (the center of the board) means that you are living fully by your values in that area of life. An X far from Bull's Eye means that you are way off the mark in terms of living by your values. Since there are four areas of valued living, you should mark four Xs on the dart board.



APPENDIX D: PERCEIVED STRESS SCALE (PSS)

The questions in this scale ask you about your feelings and thoughts during the last month. In each case, you will be asked to indicate by circling how often you felt or thought a certain way.

0 = Never 1 = Almost Never 2 = Sometimes 3 = Fairly Often 4 = Very Often

1. In the last month, how often have you been upset
   because of something that happened unexpectedly?..... 0 1 2 3 4
2. In the last month, how often have you felt that you were unable
   to control the important things in your life?..... 0 1 2 3 4
3. In the last month, how often have you felt nervous and "stressed"? 0 1 2 3 4
4. In the last month, how often have you felt confident about your ability
   to handle your personal problems?..... 0 1 2 3 4
5. In the last month, how often have you felt that things
   were going your way?..... 0 1 2 3 4
6. In the last month, how often have you found that you could not cope
   with all the things that you had to do? 0 1 2 3 4
7. In the last month, how often have you been able
   to control irritations in your life?..... 0 1 2 3 4
8. In the last month, how often have you felt that you were on top of things?.. 0 1 2 3 4
9. In the last month, how often have you been angered
   because of things that were outside of your control? 0 1 2 3 4
10. In the last month, how often have you felt difficulties
    were piling up so high that you could not overcome them?..... 0 1 2 3 4

APPENDIX E: DEPRESSION ANXIETY STRESS SCALE - 21 (DASS-21)

Please read each statement and select a number 0, 1, 2, or 3 which indicates how much the statement applied to you over the past week. There are no right or wrong answers. Do not spend too much time on any statement.

The rating scale is as follows:

0 = Did not apply to me at all

1 = Applied to me to some degree, or some of the time

2 = Applied to me to a considerable degree, or a good part of time

3 Applied to me very much, or most of the time

1. I found it hard to wind down	0	1	2	3
2. I was aware of dryness of my mouth	0	1	2	3
3. I couldn't seem to experience any positive feeling at all	0	1	2	3
4. I experience breathing difficulty (e.g., excessively rapid breathing, breathlessness in the absence of physical exertion)	0	1	2	3
5. I found it difficult to work up the initiative to do things	0	1	2	3
6. I tended to overreact to situations	0	1	2	3
7. I experienced trembling (e.g., in the hands)	0	1	2	3
8. I felt that I was using a lot of nervous energy	0	1	2	3
9. I was worried about situations in which I might panic and make a fool of myself	0	1	2	3
10. I felt that I had nothing to look forward to	0	1	2	3
11. I found myself getting agitated	0	1	2	3
12. I found it difficult to relax	0	1	2	3

13. I felt down-hearted and blue	0	1	2	3
14. I was intolerant of anything that kept me from getting on with what I was doing	0	1	2	3
15. I felt close to panic	0	1	2	3
16. I was unable to become enthusiastic about anything	0	1	2	3
17. I felt I wasn't worth much as a person	0	1	2	3
18. I felt that I was rather touchy	0	1	2	3
19. I was aware of the action of my heart in the absence of physical exertion (e.g., sense of heart rate increase, heart missing a beat)	0	1	2	3
20. I felt scared without any good reason	0	1	2	3
21. I felt that life was meaningless	0	1	2	3

APPENDIX F: TABLES

Table 1

Demographic Information

	Mean	**SD**
Age	20.55	5.03
University Affiliated Organizations	1.26	.50
	Frequency	**Percentage**
Race/Ethnicity:		
African American/Black	30	28%
Asian American/Asian	9	8.4%
Caucasian/White	64	59.8%
Multiracial	3	2.8%
Other	1	.9%
Educational Status:		
Freshman	69	64.5%
Sophomore	16	15%
Junior	12	11.2%
Senior	5	4.7%
Graduate Student	5	4.7%
Sex:		
Male	33	30.8%
Female	74	69.2%
Important Assignments Due:		
Yes	103	96.3%
No	4	3.7%
Heart Difficulties:		
Yes	6	5.6%
No	101	94.4%
BMI:		
Underweight	3	2.8%
Normal	60	56.1%
Overweight	27	25.2%
Obese	17	15.9%

Table 2

Primary Measures

Measure	**Mean**	**SD**
Committed Action Questionnaire (CAQ)	70.72	12.93
Bull's-Eye Values Survey (BEVS):		
Work/Education	3.78	1.50
Leisure	3.61	1.40
Personal Growth/Health	3.64	1.46
Relationships	4.09	1.51
Total	15.12	4.12
Perceived Stress Scale (PSS)	18.33	6.12
Minority Stress Scale (MSS)	89.08	29.99
Depression Anxiety Stress Scale-21 (DASS-21):		
Depression Scale	3.59	3.89
Anxiety Scale	3.91	4.02
Stress Scale	7.22	5.08
Physiological Measures:		
Baseline HR	76.98	12.50
Baseline BP	116.66/66.16	11.19/7.03
Task HR	85.86	13.18
Task BP	124.27/72.91	12.60/9.04
Recovery HR	76.98	12.50
Recovery BP	117.53/66.61	10.99/7.24

Table 3

Correlation Matrix

	Race	**Sex**	**Age**	**Class**	**PSS**	**CAQ**	**Dep.**	**Anx.**	**Stress**
Race	-								
Sex	-.09	-							
Age	-.16	.01	-						
Class	-.02	.04	.61**	-					
PSS	-.17	.41**	-.004	-.02	-				
CAQ	.01	-.07	.05	.17	-.48**	-			
Dep.	-.06	.03	-.16	-.17	.55**	-.46**	-		
Anx.	-.02	.06	.01	-.10	.46**	-.32**	.61**	-	
Stress	.01	.13	-.02	-.07	.65**	-.36**	.62**	.69**	-
Values	.24*	.16	-.12	-.03	.06	.04	-.18	-.02	.06
BEVS	.15	-.05	.07	.002	-.25**	.13	-.15	-.09	-.21*
Sys_ chng	.09	-.11	.13	.18	-.13	-.24*	-.12	-.05	.05
Dia_ chng	.12	-.27**	-.07	-.06	-.18	.09	-.07	-.06	.02
HR_ chng	.05	-.11	-.07	.03	-.09	-.31**	-.03	-.05	-.01
Post_Sys	.137	-.10	-.004	.06	-.12	.21*	-.10	-.03	.06
Post_Dia	.22*	-.26**	-.12	-.05	-.18	.09	-.03	-.06	.06
Post-HR	.05	-.11	-.07	.03	-.09	.31**	-.03	-.05	-.01

Note: * = $p < .05$, ** = $p < .0$

Table 3 (continued)

Correlation Matrix

	Values	BEVS	Sys_ chng	Dia_ chng	HR_ chng	Post_Sys	Post_Dia	Post_HR
Race								
Sex								
Age								
Class								
PSS								
CAQ								
Dep.								
Anx.								
Stress								
Values	-							
BEVS	-.11	-						
Sys_ chng	.21*	-.03	-					
Dia_ chng	.18	-.09	.58**	-				
HR_ chng	.14	-.16	.43**	.37**	-			
Post_Sys	.15	.002	.81**	.54**	.48**	-		
Post_Dia	.22*	-.14	.56**	.84**	.38**	.63**	-	
Post-HR	.14	-.16	.43**	.37**	1.00**	.48**	.38**	-

Note: * = $p < .05$, ** = $p < .0$

Table 4

Hierarchical Multiple Regression Predicting PSS scores (Overall Stress)

	B	**P-Value**	**R^2**
Step 1			**.494**
Race	-.384	.405	
Sex	5<.001	<.001	
Age	.030	.766	
Spiritual/religious Imp.	-.012	.872	
Imp. Assignments	2.146	.410	
Dep.	.699	<.001	
Anxiety	.256	.089	
Step 2			**.504**
Race	-.547	.251	
Sex	4.728	<.001	
Age	.049	.627	
Spiritual/religious Imp.	-.007	.930	
Imp. Assignments	1.832	.482	
Dep.	.739	<.001	
Anxiety	.238	.113	
Values	.433	.181	
Step 3			**.557**
Race	-.536	.236	
Sex	4.583	<.001	
Age	.040	.678	
Spiritual/religious Imp.	-.031	.667	
Imp. Assignments	2.565	.302	
Dep.	.579	<.001	
Anxiety	.181	.207	
Values	.372	.226	
Committed Action	-.126	.001	

Table 5

Hierarchical Multiple Regression Predicting Depression

	B	**P-Value**	**R^2**
Step 1			**.407**
Race	-.278	.346	
Sex	.021	.975	
Age	-.123	.066	
Spiritual/religious Imp.	-.016	.747	
Imp. Assignments	-1.006	.571	
Anxiety	.623	<.001	
Step 2			**.433**
Race	-.129	.664	
Sex	.280	.668	
Age	-.140	.035	
Spiritual/religious Imp.	-.019	.702	
Imp. Assignments	-.610	.728	
Anxiety	.613	<.001	
Values	-.444	.037	
Step 3			**.491**
Race	-.143	.614	
Sex	.138	.825	
Age	-.133	.035	
Spiritual/religious Imp.	-.030	.530	
Imp. Assignments	-.068	.968	
Anxiety	.513	<.001	
Values	.429	.034	
Committed Action	-.079	.001	

Table 6

Hierarchical Multiple Regression Predicting Anxiety

	B	**P-Value**	**R^2**
Step 1			**.434**
Race	.274	.367	
Sex	-.278	.712	
Age	.028	.689	
Spiritual/religious Imp.	.049	.346	
Imp. Assignments	3.410	.059	
PSS	.116	.100	
Dep.	.533	<.001	
Step 2			**.438**
Race	.213	.499	
Sex	-.339	.656	
Age	.037	.602	
Spiritual/religious Imp.	.050	.336	
Imp. Assignments	3.274	.071	
PSS	.106	.137	
Dep.	.554	<.001	
Values	.178	.433	
Step 3			**.438**
Race	.214	.501	
Sex	-.341	.657	
Age	.037	.604	
Spiritual/religious Imp.	.050	.339	
Imp. Assignments	3.268	.075	
PSS	.107	.158	
Dep.	.555	<.001	
Values	.178	.436	
Committed Action	.001	.976	

Table 7

Hierarchical Multiple Regression Predicting Diastolic Blood Pressure

	B	**P-Value**	**R^2**
Step 1			**.091**
Race	.495	.405	
Sex	-3.231	.030	
Age	-.060	.654	
Spiritual/religious Imp.	.010	.924	
Imp. Assignments	-.543	.878	
PSS	-.042	.760	
Dep.	-.064	.772	
Anx.	.002	.992	
Step 2			**.133**
Race	.183	.761	
Sex	-3.558	.016	
Age	-.013	.924	
Spiritual/religious Imp.	.017	.865	
Imp. Assignments	-1.141	.744	
PSS	-.087	.525	
Dep.	.065	.773	
Anx.	-.032	.872	
Values	.930	.034	
Step 3			**.136**
Race	.208	.731	
Sex	-3.635	.014	
Age	-.010	.938	
Spiritual/religious Imp.	.021	.834	
Imp. Assignments	-1.326	.707	
PSS	-.063	.664	
Dep.	.089	.700	
Anx.	-.032	.871	
Values	.928	.035	
Committed Action	.029	.602	

Table 8

Hierarchical Multiple Regression Predicting Systolic Blood Pressure

	B	**P-Value**	**R^2**
Step 1			**.060**
Race	.680	.275	
Sex	-1.481	.282	
Age	.173	.225	
Spiritual/religious Imp.	.109	.308	
Imp. Assignments	-.620	.868	
PSS	-.043	.758	
Dep.	-.158	.454	
Anx.	.023	.912	
Step 2			**.079**
Race	.541	.389	
Sex	-1.805	.194	
Age	.168	.236	
Spiritual/religious Imp.	.082	.447	
Imp. Assignments	-.071	.985	
PSS	-.089	.528	
Dep.	-.159	.449	
Anx.	.055	.790	
Values	1.173	.166	
Step 3			**.124**
Race	.595	.334	
Sex	-1.616	.236	
Age	.180	.195	
Spiritual/religious Imp.	.101	.343	
Imp. Assignments	-.649	.859	
PSS	-.062	.668	
Dep.	.015	.947	
Anx.	.076	.708	
Values	1.111	.181	
Committed Action	.121	.028	

Table 9

Hierarchical Multiple Regression Predicting Heart Rate

	B	**P-Value**	**R^2**
Step 1			**.024**
Race	.097	.884	
Sex	-1.497	.318	
Age	-.069	.651	
Spiritual/religious Imp.	-.077	.503	
Imp. Assignments	-1.326	.739	
PSS	-.049	.742	
Dep.	-.035	.876	
Anx.	-.022	.920	
Step 2			**.028**
Race	.027	.969	
Sex	-1.629	.275	
Age	-.071	.640	
Spiritual/religious Imp.	-.090	.440	
Imp. Assignments	-1.050	.794	
PSS	-.086	.798	
Dep.	-.036	.874	
Anx.	-.006	.978	
Values	.589	.516	
Step 3			**.136**
Race	.114	.859	
Sex	-1.325	.350	
Age	-.051	.724	
Spiritual/religious Imp.	-.060	.590	
Imp. Assignments	-1.983	.603	
PSS	.087	.608	
Dep.	.245	.287	
Anx.	.028	.895	
Values	.490	.569	
Committed Action	.195	.001	

Table 10

Hierarchical Multiple Regression Predicting Post Diastolic Blood Pressure (Residual Stress)

	B	**P-Value**	**R^2**
Step 1			**.120**
Race	1.046	.083	
Sex	-2.974	.047	
Age	-.100	.494	
Spiritual/religious Imp.	-.056	.582	
Imp. Assignments	.008	.998	
PSS	-.055	.692	
Dep.	.042	.852	
Anx.	-.050	.802	
Step 2			**.171**
Race	.695	.251	
Sex	-3.340	.023	
Age	-.046	.731	
Spiritual/religious Imp.	-.048	.629	
Imp. Assignments	-.664	.850	
PSS	-.106	.443	
Dep.	.187	.410	
Anx.	-.088	.655	
Values	1.045	.018	
Step 3			**.174**
Race	.726	.233	
Sex	-3.435	.021	
Age	-.043	.748	
Spiritual/religious Imp.	-.043	.667	
Imp. Assignments	-.889	.801	
PSS	-.076	.600	
Dep.	.217	.352	
Anx.	-.088	.654	
Values	1.043	.019	
Committed Action	.035	.527	

Table 11

Hierarchical Multiple Regression Post Heart Rate (Residual Stress)

	B	**P-Value**	**R^2**
Step 1			**.025**
Race	.066	.922	
Sex	-1.208	.470	
Age	-.068	.658	
Spiritual/religious Imp.	-.077	.507	
Imp. Assignments	-1.204	.766	
PSS	-.052	.739	
Dep.	.001	.997	
Anx.	-.010	.965	
Step 2			**.049**
Race	-.191	.783	
Sex	-1.476	.377	
Age	-.029	.853	
Spiritual/religious Imp.	-.071	.538	
Imp. Assignments	-1.696	.673	
PSS	-.089	.572	
Dep.	.107	.680	
Anx.	-.037	.868	
Values	.765	.128	
Step 3			**.162**
Race	-.003	.997	
Sex	-2.048	.197	
Age	-.011	.940	
Spiritual/religious Imp.	-.040	.710	
Imp. Assignments	-3.058	.423	
PSS	.088	.576	
Dep.	.286	.255	
Anx.	-.040	.852	
Values	.753	.113	
Committed Action	.211	.001	

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BIANCA M. CRUDUP
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EDUCATION

Doctor of Philosophy, Clinical Psychology **August 2016**
The University of Mississippi, Oxford, MS

- ~ Doctoral Dissertation: *The Associations between Values, Committed Action, and Cardiovascular Reactivity*
  - o Committee: Alan Gross, Ph.D. (Chair)
    Kelly G. Wilson, Ph.D.
    Todd Smitherman, Ph.D., FAHS
    Michael Allen, Ph.D.
    Barbara Combs, J.D., Ph.D.

APA Approved Pre-Doctoral Internship, Clinical Medical/Health Psychology **2015 - 2016**
The University of Florida, Health Science Center, Gainesville, FL

- o Director of Internship Training: Lori B. Waxenberg, Ph.D., ABPP

Master of Arts, Clinical Psychology **2013**
The University of Mississippi, Oxford, MS

- ~ Master's Thesis: *Stress, Social Support, and Psychological Well-Being in College Students Attending Majority and Minority Institutions*
  - o Committee: Alan Gross, Ph.D. (Chair)
    Todd Smitherman, Ph.D., FAHS
    Laura Johnson, Ph.D.

Bachelor of Arts, Psychology, Magna Cum Laude **2009**
Spelman College, Atlanta, GA
Major: Psychology

LICENSURE/CERTIFICATIONS

Examination for Professional Practice of Psychology

~ **Passed at Doctoral Level** **July 2014**

CLINICAL EXPERIENCE

Clinical Medical/Health Psychology Intern **2015 - 2016**

The University of Florida, Health Science Center, Gainesville, FL

~ Conducting semi-structured diagnostic assessments, primary caregiver interviews, neuropsychological testing, short- and long-term empirical treatments (individual & group), with a variety of inpatient and outpatient populations, as well as ongoing supportive psychosocial services to family members, across the following rotations:

- *Transplant Psychology, Acute Adult Neurotrauma, Psycho-Oncology,Chronic Pain/Primary Care, Women's Health, Adult Neuropsychology, Behavioral Sleep Medicine, Weight Management, and Child Health*

~ Authoring integrated neuropsychological reports and brief EPIC medical records

Supervisors: Glenn S. Ashkanazi, Ph.D.; Robert T. Guenther, Ph.D., ABPP (RP); Deidre Pereira, Ph.D.; Lori B. Waxenberg, Ph.D.; Patricia E. Durning, Ph.D.; Duane A. Dede, Ph.D.; Lisa M. Clifford, Ph.D.; David Janicke, Ph.D.; Nicole E. Whitehead, Ph.D.

Mental Health Therapist (Intern) **2013-2015**

University Counseling Center, The University of Mississippi, University, MS

~ Conducted intakes, individual and group therapy sessions with college students and faculty/staff presenting with mood disorders, active psychosis, suicidal

~ Completed intake paperwork including DSM-IV-TR and DSM-V diagnoses, targeted behavior of change, and elaborated behavioral treatment plans

~ Authored individual and group therapy notes

Supervisor: Keysha Thomas, Ph.D.

Graduate Student Therapist **2011-2015**

Psychological Services Center, The University of Mississippi, University, MS

~ Conducted screenings, semi-structured assessments, intake, and individual, couple, and group therapy sessions with clients presenting with various disorders and co-occurring chronic medical conditions

- ~ Authored therapy notes, assessment evaluations, and completed other psychological documents

- ~ Trained in Cognitive Behavioral Therapy (CBT) and Acceptance and Commitment Therapy (ACT)

Supervisors: Alan M. Gross, Ph.D. (2011-2012); Danielle Maack, Ph.D. (2012-2013); Todd A. Smitherman, Ph.D. (2013-2014); John Young, Ph.D. (2014-2015)

Behavioral Therapist and Consultant (Intern) **2012-2013**
Autism Center of North Mississippi, Tupelo, MS

- ~ Conducted diagnostic assessments with children and adolescents and authored detailed psychological reports

- ~ Conducted psychological/behavioral consultations and functional behavior analysis consultations for numerous elementary, middle and high schools in underserved counties

- ~ Conducted social skills training and discrete trial training for children and adolescents with Autism Spectrum Disorder.

- ~ Conducted client history reviews, multiple-setting observations, structured interviews with teachers, parents, and clients, analyzed functions of clients behaviors, made recommendations, and wrote formal reports detailing consultations

Mental Health Therapist (Intern) **2011-2012**
North Mississippi Regional Center (NMRC), Oxford, MS

- ~ Conducted individual and group therapy with adults with intellectual and developmental disabilities in a residential facility

- ~ Conducted psychological assessments and authored integrated formal reports that aided in determining eligibility for services provided by NMRC

Psychology Intern
2009
Women's Resource Center to End Domestic Violence, Decatur, GA

- ~ Taught non-violent resolution methods to children exposed to domestic violence, co-led group sessions and individual therapy sessions with families of domestic violence, assisted children with homework

RESEARCH EXPERIENCE

Graduate Lab Member **2013-2015**
Migraine and Behavioral Health Laboratory, University of Mississippi, *Oxford, MS*

- ~ Collaborated the following projects:
  - *Establishing a relationship between obesity, stress, and headache disability*.
  - *Psychological flexibility in migraine: Acceptance and values-based action*

Graduate Lab Member **2010-2015**
Sexual Victimization and Perpetration Laboratory, University of Mississippi, *Oxford, MS*

- ~ Assisted with the following projects:
  - *The impact of Relationship Context on Evaluations of Sexual Behavior*
  - *The Effects of Survey Wording in Detecting Perpetration and Victimization*
  - *Impact of Relationship Context on Evaluations of Sexual Behavior of Men and Women*

Research Assistant to Kesi Miller, Ph.D. **2009**
Mental Health in the Media
Spelman College, Atlanta, GA

- ~ Examined student's reactions to mental health prior to educational enlightenment of psychological difficulties.

Principal Investigator **2007**
College Students and the Effects of Peer Pressure
Spelman College, Atlanta, GA

- ~ Examined whether peer pressure was more prevalent among female, first-year college students or female, senior college students.
  - Results indicated that female, senior college students are more susceptible to peer pressure than female, first-year college students.

PROFESSIONAL PUBLICATIONS

Vail, K., **Crudup**, B. M., & Schulenburg, S. E. (2011). Movies of interest to logotherapists. *The International Forum for Logotherapy*, 34(2), 110-112.

PRESENTATIONS

Crudup, B. M. & Gross, A. M. (2014, Nov.). *Stress, Social Support, and Psychological Well-Being in College Students Attending Majority and Minority Institutions.* Poster accepted

at the annual scientific meeting of the Association for Behavioral and Cognitive Therapies, Philadelphia, PA.

Foote, H. L., **Crudup**, B. M., Moynahan, V. L., Landy, S. H., Roland, M., & Smitherman, T. A. (2014, June). *Psychological flexibility in migraine: Acceptance and values-based action*. Poster presented at the annual scientific meeting of the American Headache Society, Los Angeles, CA.

Person, J. M., Wencel, L. W., **Crudup**, B., Johnson, Y., & Smitherman, T. A. (2014, April). *Establishing a relationship between obesity, stress, and headache disability*. Poster presented at the 2014 UM Conference on Psychological Science, Oxford, MS.

Crudup, B. M., Ladner, J. M., & Schulenberg, S. E. (2011, June). Rabbit Hole: A movie workshop identifying logotherapeutic approaches. Workshop presented at the Eighteenth World Congress on Viktor Frankl's Logotherapy, Dallas, TX.

COLLEGE TEACHING EXPERIENCE

Graduate Instructor, *Introduction to Psychology* **Spring 2015**
The University of Mississippi

Graduate Teaching Assistant, *Health Psychology (PSY 410)* **Fall 2013**
The University of Mississippi

Guest Lecturer, *Health Psychology (PSY 410), Stress* **Fall 2013**
The University of Mississippi

PROFESSIONAL DEVELOPMENT

Ad Hoc Reviewer, *Behaviour Research and Therapy* 2014
Guest Reviewer, *Professional Psychology: Research and Practice* 2011
Ad Hoc Reviewer, Book Chapters for *Foundations of Behavioral, Social, and Clinical Assessment of Children, Sixth Edition* by Jerome Sattler 2010

AWARDS & HONORS

- ~ Phi Beta Kappa 2010
- ~ Dewitt Dean's Scholar 2006- 2009
- ~ Dean's List 2007- 2009
- ~ Psi Chi International Honor Society 2009

~ Golden Key International Honour Society 2008
~ Alpha Lambda Delta Honor Society 2007
~ National Society of Collegiate Scholars 2007

LEADERSHIP & COMMUNITY INVOLVELMENT

~ Charter member and Treasurer of the University of MS Black Graduate and Professional Student Association 2014-2015
~ Volunteer with the National Parkinson Foundation 2011
~ Volunteer with the Blair E. Batson Children's Hospital, Jackson, MS 2011
~ Charter member and President of the Atlanta University Center Mississippi Club 2008- 2010
~ Volunteer at Friendship Baptist Church, Atlanta, GA 2008
  - Tutored children between the ages of 7 and 12
~ Volunteer at Grady Hospital, Atlanta, GA 2008
  - Assisted nurses in the intensive care nursery
~ AIDS Walk Atlanta 2008
  - Raised over $1000 towards cause and participated in walk

MEMBERSHIPS

~ Division 22 of the American Psychological Association 2016
~ American Psychological Association 2011-present
~ National Ataxia Foundation 2011-present
~ Alpha Kappa Alpha Sorority, Incorporated 2008-present